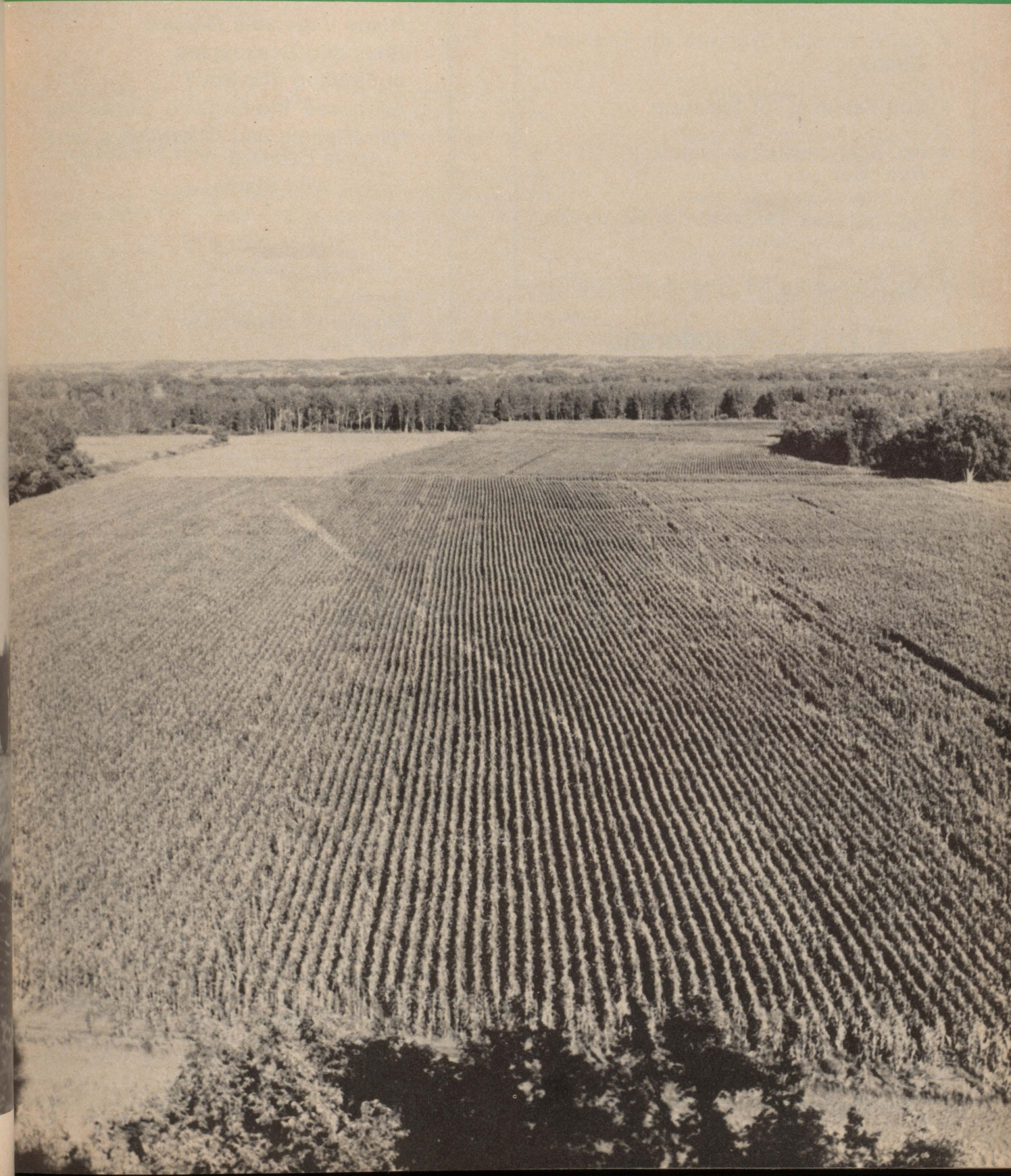


The Macdonald Journal

FEBRUARY 1979





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FEBRUARY 1979

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In This Issue

Cover: An attractive photo
of a cornfield introduces
our special issue on the
subject of "Crop Rotation or
Monoculture?"

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Journal Jottings

"Do you think we should do
something on crop rotation?"
brought not only an affirmative
answer from Professor A. F.
MacKenzie of the Department of
Renewable Resources but also he
managed to "charm" three of his
colleagues into submitting articles
for the same issue. Thus we have
contributions from Professor E.
McKyes of the Department of
Agricultural Engineering, Raymond
Martin of the Department of Plant
Science, and Douglas Mutch of the
Department of Agricultural
Economics. We decided on the
broad theme Crop Rotation or
Monoculture? with each contributor
approaching the subject as he
deemed appropriate.

As is explained in the introduction to
the series of articles, the subject
has not been exhausted in this one
issue — there are many more areas
that could be covered. I also
gathered from working with this
material that the decision is not be-
ing made for you. As each writer
has his own concerns and
preferences, so will you. Therefore,
you must weight the pros and cons
as regards your own situation and
decide what's best for you. Your
herd requirements, your soil
capabilities, your machinery needs
and — high on the level — your
economic considerations will be
some of the factors you will weigh

before coming to a decision. We
hope that the following articles will
help you tip the scales in the right
direction.

The specific topic approach for
February was interesting to work on
and I trust will be found informative.
It is certainly an idea to keep in
mind for future planning, although I
feel, too, that a "mixed bag of
goodies" means that there is
something for everyone.

Hazel M. Clarke

Is free enterprise and freedom of action in farming becoming a concept of the past? Because of prominence of agricultural legislation, most farmers are quickly realizing that this question must be seriously evaluated.

It is inevitable that the agricultural industry must be content with increasing government interference. The legislators are committing themselves to produce increasingly complex and far-reaching laws. Unfortunately, the farmers who are at the receiving end of this legislation are left bewildered by all the material that must be absorbed and understood. The usual tendency is to approach the legislation with skepticism and reservation.

Is government interference really as bad as it is made out to be? Is the status of the farmer as a free entrepreneur really endangered? These questions can only be answered by evaluating them in the context of experience within the Canadian perspective.

With all their pitfalls and benefits, the concept of free enterprise and the free market system has undergone definitive changes over the years. The lack of security that plagued farmers, the irregularity of

food products flow to the consumer were the main instigation for government to become involved. This marked the beginning of trade-offs of freedom for security. As time went on, the negotiations and discussions regarding any sector of the agricultural industry became entrenched in a cobweb of agreements, subsidies, and special programs initiated by federal or provincial governments.

Even farm associations played a role in this process. The situation has become such that the farmer must spend a considerable amount of time remaining up to date with the new developments. The alternative is to regress a few decades, which is certainly not an appealing proposition. Today, largely because of the government programs, the Canadian farmer has a standard of living that is certainly not below that of any of his counterparts in the world. This does not mean that any government interference should be accepted. Regulations formulated by an increasingly centralized power must be watched carefully to pre-

vent it from gaining too much of an upper hand at the expense of the farmer. This is where farmers collectively should take a stand and make strong representations on their own behalf. Since only 5% of the Canadian population is involved in farming, the political leverage that farmers can exercise is limited in political terms. This makes it essential that our legislators are provided with a continuous feedback of your opinions. Farmers will have to develop skills in the art of lobbying on the process of legislative engineering to ensure that their interests are understood and considered.

Martin van Lierop
Editor

Crop Rotation or Monoculture?

Introduction

Before specialization, crop rotation was the most popular cropping system as the farm provided food for the family as well as feed for the animals. There was then a need for diversification. Post-war agriculture became more oriented toward specialization where a farmer would produce one or a very few crops and buy whatever else was needed for both the family and the animals. With the level of specialization

achieved and the availability of herbicides and fertilizers, crop rotation has been replaced, in many cases, by monoculture.

However, the recurrence of certain weeds and diseases and the diminution of yield has brought back an interest in crop rotation. In the following series of short articles we tried to look at different aspects of crop rotation which are interrelated to each other. We analyzed the situation using corn as the basis for

discussion, though the same principles apply for other crops. We do not pretend to have exhausted the subject. However, our objective is to explore some of the major implications of crop rotation from different angles so the reader will have a better understanding of the consequences at different levels of crop decisions. All comments on the format and the approach of this series are welcome so that it may be repeated and improved upon. (The authors.)

Soil Structure and Crop Growth

by Professor E. McKyes
Department of Agricultural
Engineering

Since the soil supplies the physical support, the water, and the nutrients for crops, the quality of the soil structure is most important for the best growth yield of plants. The ground must be strong enough to support plants against wind and rain forces, but not so hard that roots cannot grow deep to get water. Similarly the pores or open spaces within the soil must be large enough to allow the drainage of excess water and aeration of plant roots. Another function of void spaces in the soil is to store water for crop use during dry periods between rain. If voids are mostly too large, then water actually drains away too easily and little is left for dry periods. On the other hand, if the ground is too compact, there are not enough spaces to store water or it is held in spaces too small for plant roots to extract it.

Compaction

When the soil surface settles from natural causes, or is compressed by machinery traffic, the process is called compaction. During this change in soil structure, the soil becomes more dense and the average pore spaces smaller. The amount of density change resulting from traffic depends on the pressure applied by the machinery wheels on the soil surface and the number of times a vehicle passes over the same spot on a field. Another factor is the wetness of the soil at the time of traffic, because a very dry soil does not compact as much as a wet soil for the same tire contact pressure. Thus a combination of wet soil, heavy vehicles, and many passes in the field can result in excessive compaction, a very dense soil with poor aeration and water retention properties, and a serious loss in crop production.

Another point to note is that the compaction of soil from the wheels of large tractors and wagons affects the ground to a depth of up to 60 cm (2 feet). Therefore most of the compacted profile will not be loosened by standard mouldboard plough or chiselling operations, and poor crop growth may be observed in successive years despite the best standard tillage techniques.

Soil Loosening

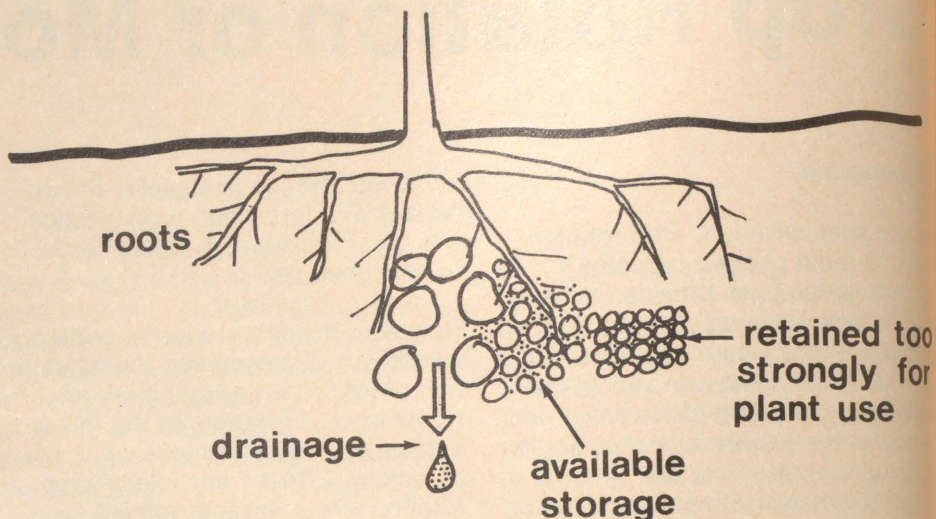
Standard uplift tools like the plough or chisel do a reasonable job of loosening soil and correcting over-compacted structure within the depth profile which they affect. In the case of compact soil which is below the normal plough depth, deep ploughing or subsoiling may be required to break up the hard structure and make larger spaces for water retention or for drainage. Once a deep compact layer has

been broken, even if not completely, alternate wetting and drying and the penetration and drying effect of plant roots can disaggregate the soil blocks further into a superior structure for crop production. In this context, strong rooted crops such as alfalfa and clover are most suitable for the improvement of a deeper compacted soil layer.

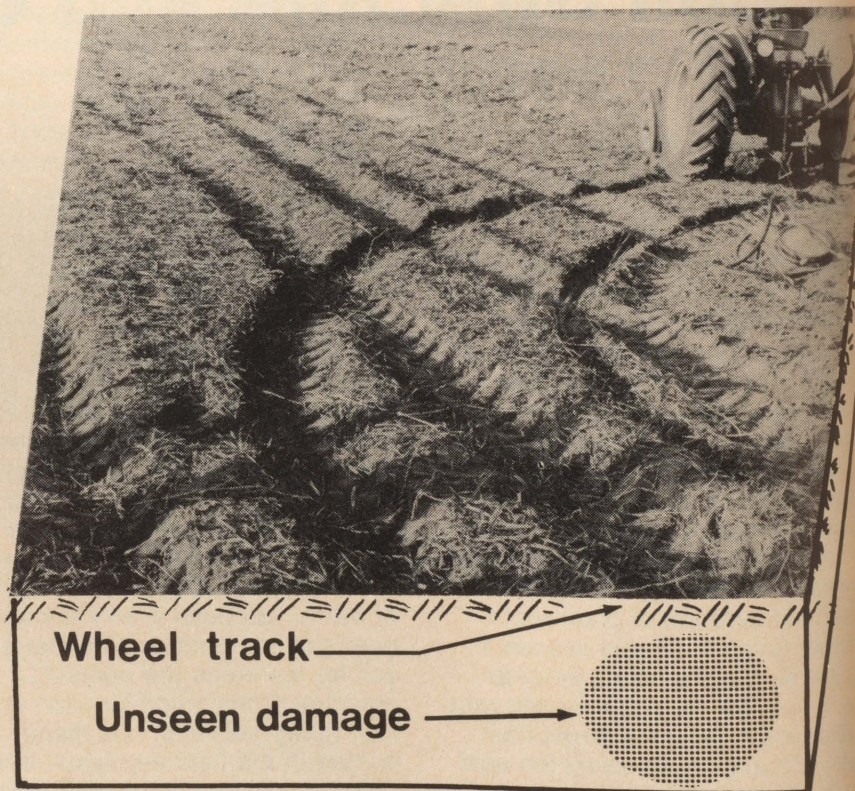
This is one of the benefits of a crop rotation program on a farm field. Crops with strong roots in a rotation scheme can restore good subsoil structure over a year or two, and often allow one even to dispense with the need for mechanical subsoiling operations over the long term. The roots of corn, for instance, ideally try to grow up to 2 m (6 feet) deep for a healthy plant, but they cannot penetrate hard compact soil layers and are not particularly noted for improving an already poor soil structure.

Another potential value of crop rotation is the possibility of incorporating a large quantity of green manure organic matter into the soil from time to time. Then the elevated organic content of the soil can produce a more stable, aggregated soil structure; one which is less prone to severe damage by vehicle traffic and more able to maintain the water drainage and retention characteristics which are beneficial to plant growth.

Many people are of the opinion that soil freezing can help to loosen compact soil during the winter season in Canada. This concept is not always true for several possible reasons. A thick snow blanket on the ground during cold periods reduces the depth of frost penetration considerably and lessens the extent of soil profile benefited. Also the loosening effect in freezing arises mainly from the expansion of water into ice, and there will be little such effect if a particular field is quite dry in the winter season. In the case of a soil of high clay content, not all the soil water freezes below the



Above: Water storage in the soil. Some water is held too tightly for plant use, and some drains too easily. The remainder is called available water. Below: Compaction damage extends below the soil surface up to 90 cm (2 feet) as shown on this section of the soil profile.



usual freezing temperature because of the effect of salts and the clay particles themselves on water. If one or more of these conditions is

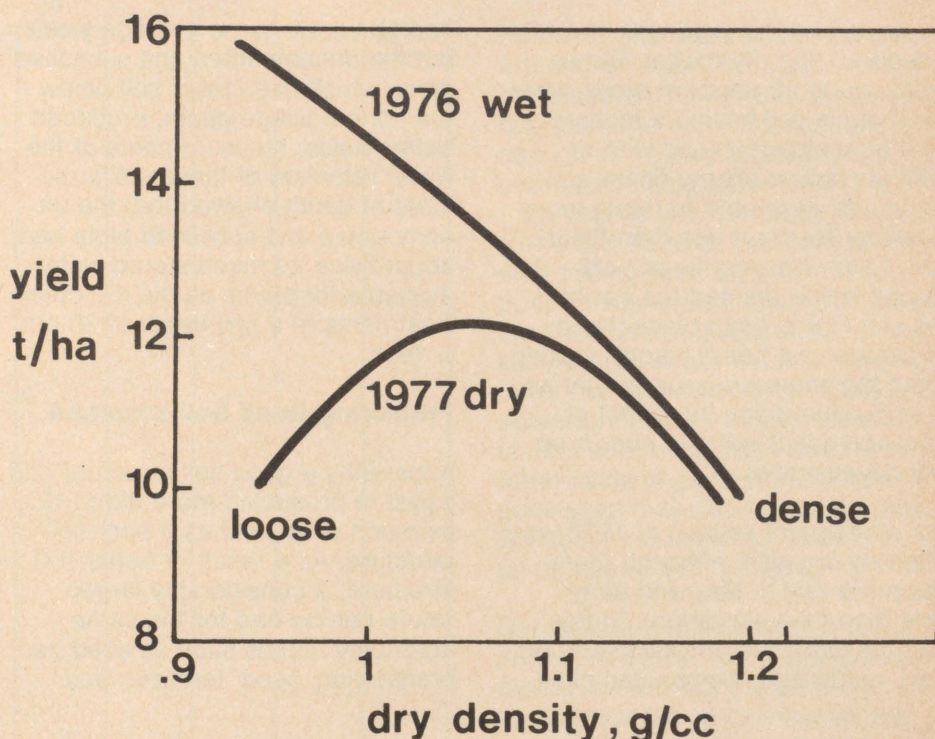
present, then soil loosening may be quite minor during the winter and a poor structure for crops may persist unless other measures are taken.

Climate

Recent controlled field tests have revealed that even in the same location, unfortunately, there is not an optimum structure for a particular soil or crop in years of different precipitation. Silage corn was grown for several years on a Ste. Rosalie clay field at Macdonald College in plots having different levels of compaction or various tillage treatments. The structure of the soil in these plots varied from very loose, rototilled soil to ground compacted by 15 passes of a heavy tractor. The depth of compacted soil varied also in the tests from plots compacted at all depths by heavy traffic, compacted plots with topsoil loosened by standard plough or chisel and compacted ground loosened to 50 cm (20 inches) by a subsoiler having 30 cm (1 foot) wide wings.

In 1976, 29.1 cm (11.5 inches) of rain fell between May 1 and July 31, which is 5.8 cm (2.3 inches) more than usual for the area. In a wet year such as this, there are few extended periods between rains, and water storage in the soil void spaces is not such a critical factor. Drainage and root aeration, on the other hand, become most important because roots can become waterlogged and suffer from poor aeration, thus stunting growth. It is not surprising then that the best crop growth was observed in the most loose rototilled soil. In fact the corn crop took the best advantage of the plentiful rainfall in 1976 and yielded over 16 t/ha of dry silage matter.

By contrast the heavily compacted plots, which simulated a farm field with a soil structure problem, produced less than half of this yield. In addition, the corn roots in hard, compacted soil grew only 60 cm (2 feet) deep, half the depth of those in the loose soil, and could not produce the best plant growth possible. The value of promoting a superior soil structure by avoiding excessive soil compaction and by any other



Above: Graph of the yield results in two years at different soil dry densities. Below: The differences in corn yields because of soil compaction can be quite easily seen in side by side comparison plots. At left is a plot compacted by 10 passes of a tractor between rows after seeding. At right is a loose rototilled soil without machinery traffic.



means possible is quite evident from these results.

In 1977, the subsequent year, there were 8.1 cm (3.2 inches) less rainfall than in an average summer and

soil conditions were dry throughout most of the season. That year the plots with very loose soil drained easily but did not store a sufficient volume of water for plant needs on

dry days, and the yield was lower, around 10 t/ha dry matter. Better yields, up to 30 per cent more, were observed in soil having a moderate level of compaction and with or without shallow tillage. These soil structures were able to retain more rainwater for plant use than the looser soil with very large void spaces which drained too easily. The soil which was compacted by 15 passes of a heavy tractor yielded about the same low crop weight as in 1976, illustrating the effect of overly compact soil and poor crop root development.

The subsequent season of 1978 was relatively dry also, although there was more rain in May and early June than the year before. In this year the ploughed, chiselled and untilled, moderately compacted plots

had about the same average yields, but the uncompacted and subsoiled plots, which had looser soil below the normal tillage depth, produced better yields. Measurements of the water retention of these soil structures at depth showed that the uncompacted and subsoiled plots had about twice as much stored water available for plants as did the other treatments at a soil depth of 30 cm (1 foot).

Promoting Good Soil Structure

Apparently a good soil structure can assist in producing more than twice as much crop yield as a poor soil structure. As a result of better soil structure, a considerably larger return can be had for the same agronomic inputs such as seed bed preparation, seed, fertilizer, and

weed control measures. Probably the easiest way to maintain a suitable soil condition is to avoid many passes of heavy machinery, especially when the soil is wet and prone to severe compaction. Heavy compaction extends well below the normal plough depth and can be costly or long to improve. For compaction which is hard to avoid, the measures of crop rotation, organic matter amendments and deep ploughing or subsoiling are available to correct the situation and to encourage good plant root development, water availability, and yields. Of course, the needs for special measures of soil loosening will be reduced in proportion to the extent to which deep soil compaction is prevented during all the machinery operations in the crop production system.

The Choice?

by Professor A. F. MacKenzie
and Peter Kirby*
Soil and Land Resources
Department of Renewable
Resources

Continuous Corn

It's appealing. Continuous corn requires fewer yearly decisions, is not changed by winter killing, allows flexibility in fertilizer use and variety changes, and produces feed and energy in large amounts year after year.

Corn is reliable. In eight years of grain corn production, we have found yields in our poorest years are 80 per cent of the yields in our best years (Figure 1). Silage corn yields are also quite reliable; the poorest years yielding 75 per cent of the best years (Figure 2). And 9500 kg/ha dry matter is comparable with alfalfa yields.

*Peter Kirby is a Senior Technician in the Department of Renewable Resources.

Figure 1. Experimental Grain Corn yields, summarized over 8 years.

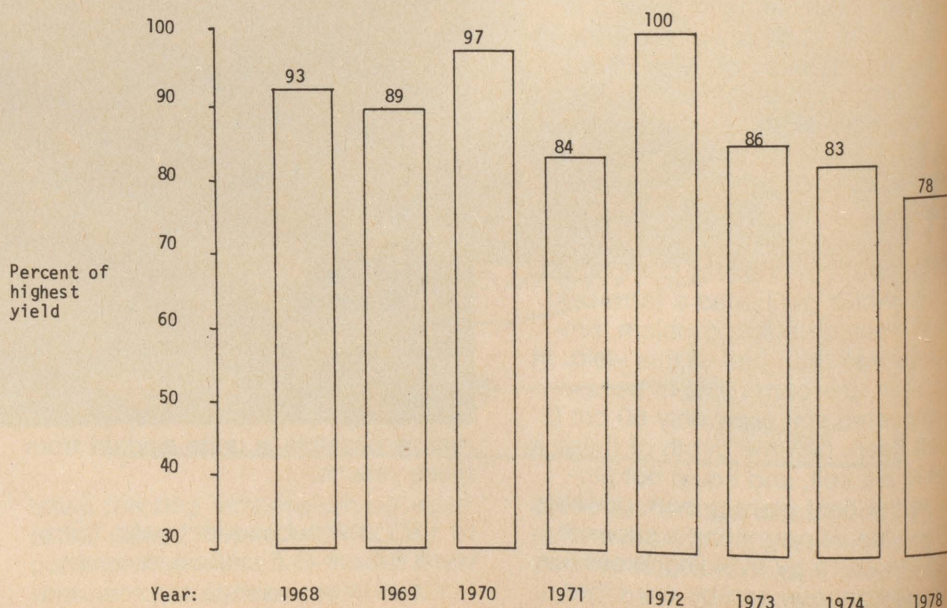
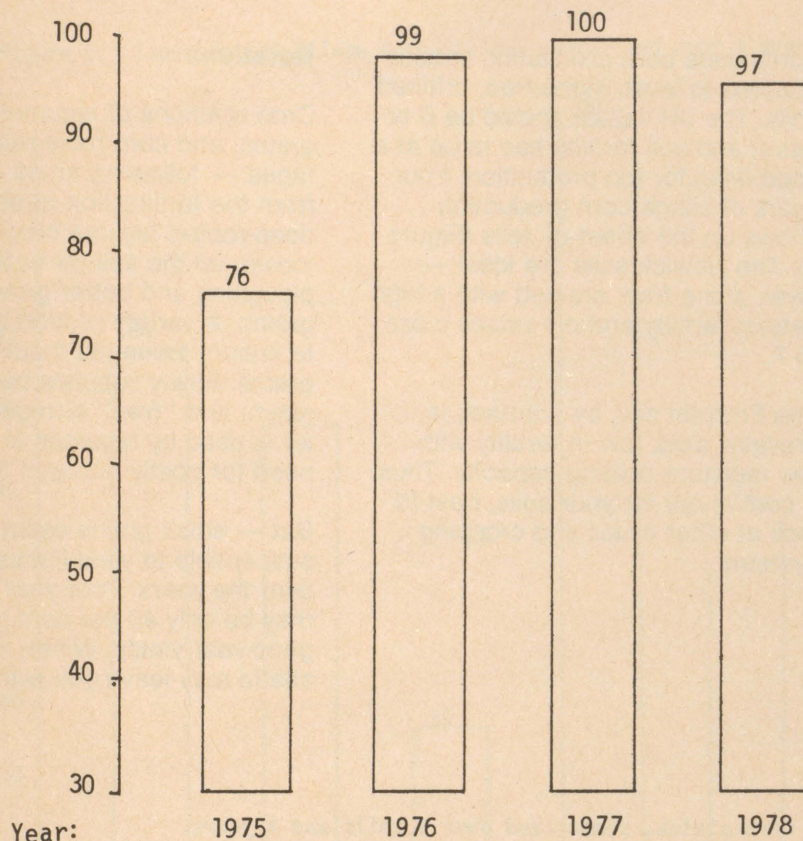


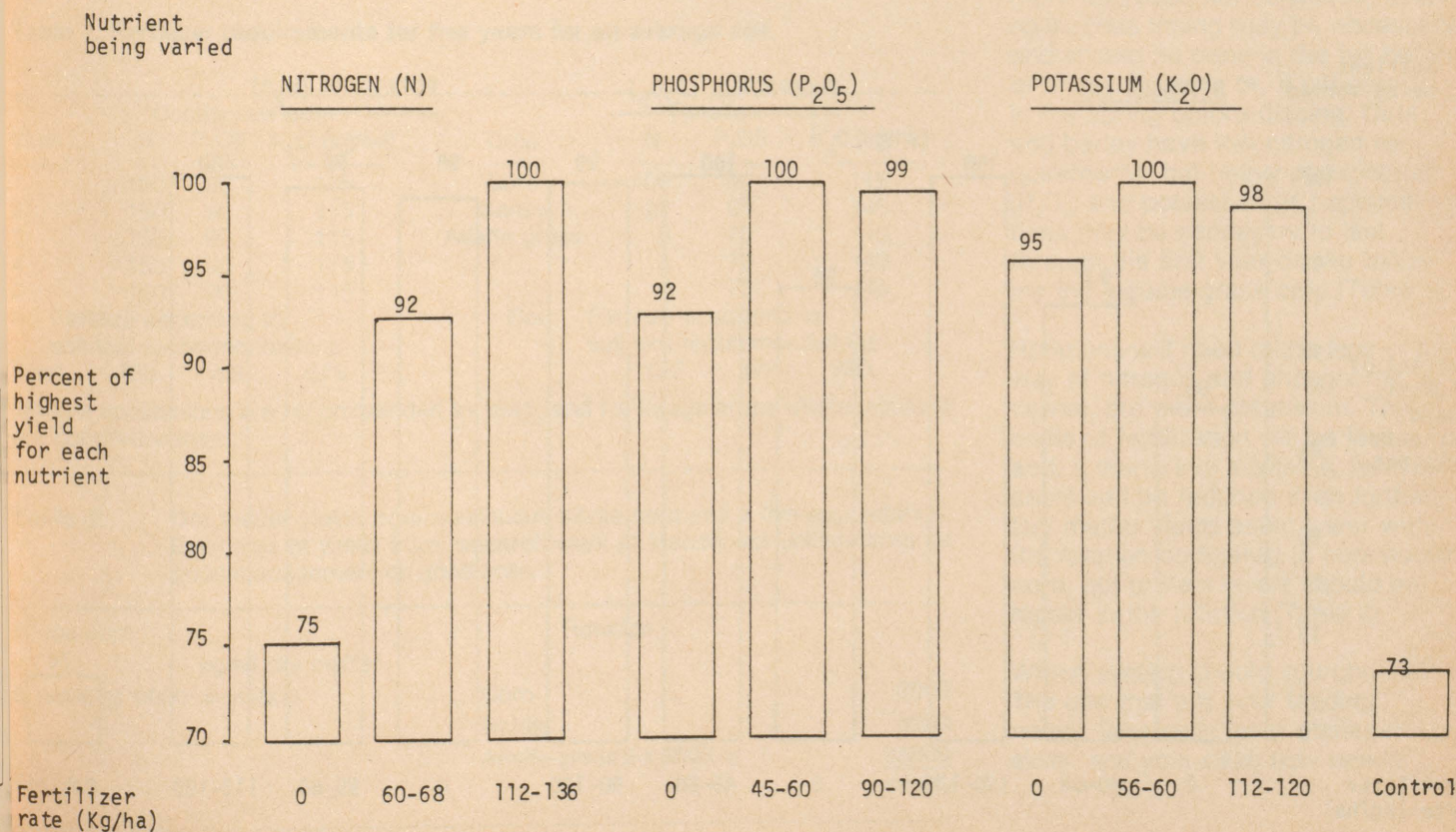
Figure 2. Experimental Silage Corn yields, summarized over 4 years.



However, there are costs. Fertilizers are a large input. Nitrogen fertilizer rates above 130 kg N/ha are not uncommon and recommendations run as high as 170 kg N/ha. There appears to be little carry over of N from year to year. Without nitrogen, yields are 75 to 85 per cent of yields with 130 kg N as fertilizer (Figures 3, 4). Phosphorus and potassium are also needed, at levels of 50 to 150 kg K₂O or P₂O₅ per hectare. Some carry over of phosphorus (P₂O₅) and potassium (K₂O) is likely, however, so that soil buildup can occur. Fertilizer rates of phosphorus and potassium may decrease with time. Soil tests are useful to monitor buildup or loss of soil nutrients.

But fertilizers are becoming more and more costly, and increased efficiency is necessary. Placement of phosphorus below and beside the seed, fall plough-down of potassium and spring applications of N assure good use of fertilizer.

Figure 3. Experimental Grain Corn yields, summarized over 4 soils and 8 years



Manure is an excellent substitute for fertilizers but cannot be a complete substitute. Nutrient release from manure is slow in the spring and should be augmented by additions of nitrogen and phosphorus for a quick, early start. Poor manure storage may result in large nutrient losses. But the potential of manure use is great — and there are spinoffs in improved soil physical properties, better seedbed, and easier ploughing.

Twenty tonnes per hectare of manure, stored so as to eliminate losses, will supply about 25 per cent of the N, 25-50 per cent of the P_2O_5 and 50-80 per cent of the K_2O for the crop. And at only the cost of spreading if you have your own manure supply.

Continuous corn production in best adapted to level, stone-free, drained soils. The pH values should be 6 or more, and soil fertility has to be at a good level for top production. Four years of silage corn production shows up the effect of soils (Figure 5). The Howick soils are ideal — level, stone free, drained with a high natural fertility and pH values close to 7.

The Franklin soil, by contrast, is gravelly, acid, low in fertility with low moisture holding capacity. Thus if corn is not for your soils, best to look at other crops and cropping systems.

Rotations

Crop rotations of legumes, small grains, and corn have real advantages — following crops can profit from the fertilization of earlier crops, deep-rooted legume crops can loosen up the soil for easier ploughing and better growth of small grains. A variety of feed is available to ensure balanced feeding programs. Straw supplies bedding needs and "free" nitrogen from the air is used by legumes to reduce the need for costly nitrogen fertilizers.

But — small grains seem more susceptible to yield fluctuations over the years. Poor-year yields may be only 40 per cent of good-year yields. Winter-killing of alfalfa may leave you with a grass-

Figure 4. Experimental Silage Corn yields, summarized over 5 soils and 4 years.

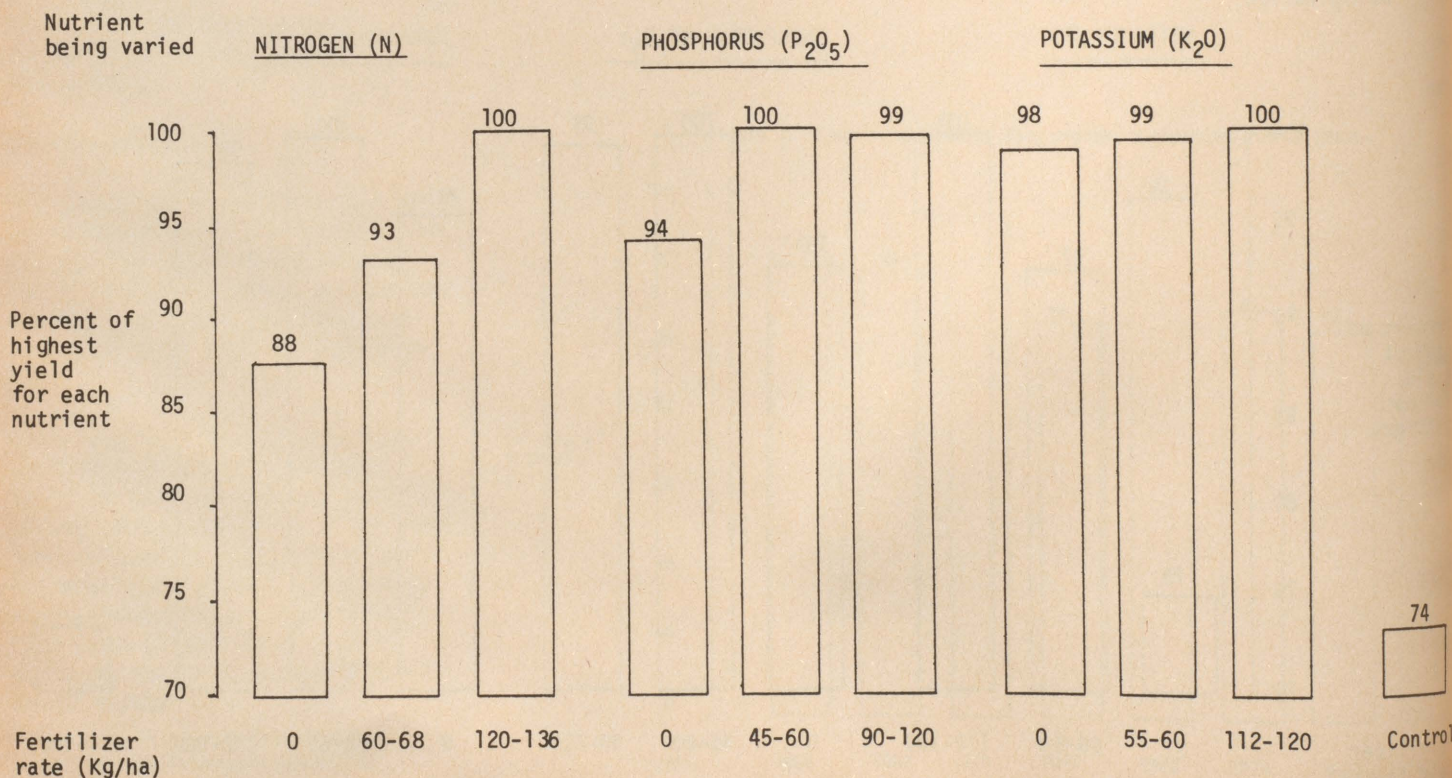
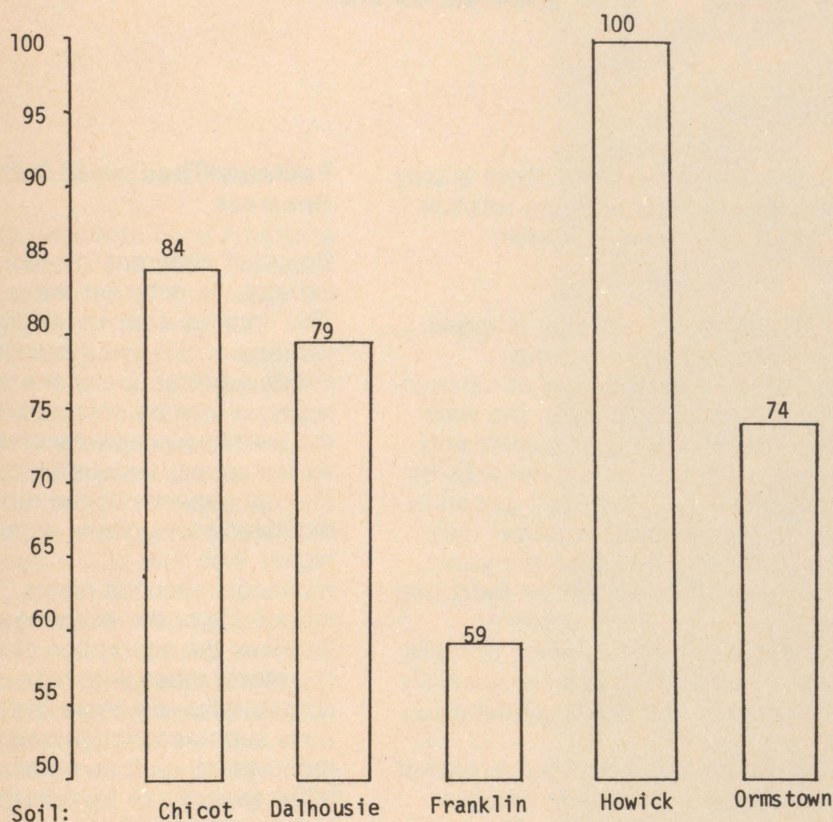


Figure 5. Experimental Silage Corn yields, summarized over 4 years



pasture which needs high nitrogen fertilizer input. Fertilizing a hay-pasture crop can be expensive the first year as later fertilization of phosphorus (P_2O_5) may be inefficient or ineffective. And soils for alfalfa need to be deep, well drained, and have a high pH. Low soil fertility is not as big a problem with legumes as it is with corn, however.

Thus good soil management is necessary to keep your rotation system on track. Let's consider a five-year rotation of corn the first year after forage ploughing, the second year small grains, alfalfa-grass for three years.

Corn fertilization in nitrogen could be lower by 50 kg/ha because of the plough-down of a legume-grass mixture. Otherwise soil test recommendations could be followed. The small grain (probably seeded down) following corn could be oats, barley, or wheat. Oats are adapted to a wider range of soils than barley. Barley grows best at pH values of 6.5 or more and does not do well on acid soils. Thus timing may be necessary and should be done in the fall before or after ploughing or, if necessary, in the spring before discing. Oats and barley have low nitrogen requirements, but heavy phosphorus (P_2O_5) and potassium (K_2O) applications may be necessary to last through the first year or two following the legume-grass crop (Table 1).

Rotations will need much less in the way of nitrogen and phosphorus fertilizers, but more potassium. The costs of fertilization will be less, and, if manure is available, fertilizer costs can be reduced even further. Dry matter yields seem lower with the rotation compared to continuous corn, but protein levels should be higher in the rotation (Table 2).

Which system should you choose? The one that fills your feeding needs, your soils, your management skills, and your cash flow needs.

Table 1. Fertilizer requirements for five years for an average soil.

Year	Continuous corn			Crop	Rotation		
	N	P ₂ O ₅	K ₂ O (kg/ha)		N	P ₂ O ₅	K ₂ O (kg/ha)
1	150	90	115	Corn	100	90	115
2	150	90	115	Barley	22	90	145
3	150	90	115	Alfalfa grass	0	70	140
4	150	90	115	" "	0	70	140
5	150	90	115	" "	0	70	140
6	Fertilize according to soil test recommendations				Corn	Fertilize according to soil test recommendations	
Total	750	450	575		122	390	680

Manure applications are recommended for corn, and for forage crops where legumes are not predominant.

Table 2. Dry matter yields from continuous silage corn and a five-year rotation. Estimates of yields from research work at Macdonald College assume good management on good soils.

Silage corn	kg/ha dry matter	Rotation	
5 years @ 9000 =	45000	Corn	9000
		Barley	3000
		Alfalfa-grass 3 x 9500 =	28500
			40500

The Agronomic Aspect of Crop Rotation

by R. Martin
Department of Plant Science

The basic agronomic reasons as to why crop rotation is advantageous are:

1. Because there may be toxic excretions from the roots of the crops or the decomposition of the stubble;
2. Because of the differences in the kinds and quantities of nutrient required by the plants;
3. Because there are differences in the feeding powers of plants for nutrients in the soil solution;
4. Because different crops are susceptible to different pests (diseases and insects);
5. Because of the different crop-weed associations.

In order to illustrate our discussion with some relative figures, we will start by looking at an experiment done at Woodlee in Ontario from 1947-1962 (Table 1).

The first aspect, namely the toxicity of root excretions and/or stubble decomposition is not — at least, has not been identified — as a limiting factor in corn production. Using the results of Table 1, we will discuss hereafter the four following factors.

Factor 1: The Nutrients Required

If we look at the difference in yield between CC and COAA with no fertilizer, there is a 36.9 bu/ac advantage of rotation over continuous corn. Accordingly, a good legume ploughed down may supply 60 to 80 pounds of nitrogen per acre. This could partly explain the difference observed as we know that corn requires a heavy dose of nitrogen fer-

tilizers. And even when there is only one year of legume in the rotation, the gain in yield is 8.8 bu/ac (CS-CO).

It is also recognized that nitrogen fertilizers enhance maturity; therefore, a good supply of nitrogen would reflect not only on the yield quantitatively but also qualitatively. Since we are in a marginal area for corn growing, a few days gained in the fall by adequate fertilizer may prove to be critical in some years. To this must be added the facts that low moisture corn is easier to harvest and that the drying process when the moisture level is relatively high impairs the quality of the grain.

This difference of 36.9 bu/ac cannot be attributed only to the nitrogen supplied by the legumes. The tap root of legume also improves the structure of the soil, which favours the development of roots and better uses of the soil fertilizer reserve as is discussed in another article. This can be illustrated by looking at the difference of COAA and CC where fertilizer is applied. There is a 25 bu/ac gain of rotation over monoculture of corn.

Factor 2: The Use of Soil Reserves

Roots of different crops develop in different ways. This implies that by taking advantage of this characteristic of the plants a better use of the soil reserves can be obtained. Moreover, the exchange capacity of roots varies among various plants. The exchange capacity of the roots of dicotyledonous plants is much higher than that of monocotyledonous plants. The magnitude of the exchange influences the absorption of cations; therefore, those with high capacity absorb relatively more divalent cations such as calcium and less monovalent such as potassium. This latter aspect can explain the deficiency symptoms observed in fields that have been seeded to corn for several years. This is not the only reason; however, it could be one of several. Finally, there is association of micorhizal fungi with certain root systems which helps to mobilize some of the nutrients.

**Table 1. Effect on yield of corn of different rotations
Woodlee Ontario (1947-1962)**

Rotation	Corn yield with no fertilizer Bu/ac	Corn yield with fertilizer Bu/ac
Corn Oats Alfalfa Alfalfa	(COAA) 67.2	77.1
Corn Soybean Oats Alfalfa	(CSOA) 63.3	78.6
Corn Oats Alfalfa Soybean	(COAS) 61.4	79.5
Corn Oats Alfalfa	(COA) 51.2	72.2
Corn Soybean Soybean	(CSS) 47.8	68.5
Corn Soybean	(CS) 43.9	69.3
Corn Oats	(CO) 35.1	58.5
Continuous corn	(CC) 30.3	52.1
Mean all treatment	49.1	69.4
Mean increase of fertilizer		25.3

Factor 3: Diseases and Pests

The first two aspects have a definite influence as we have seen previously but this could be minimized by the use of fertilizers. However, as shown in Table 1 even with fertilizers there is still a difference of 25 bu/ac between corn in a rotation system with corn in monoculture. Part of that difference can be explained by improvement of soil characteristics discussed in the other articles.

There are, however, two factors responsible for crop losses: diseases and insects, which are difficult to overcome by means other than by crop rotation. One can argue that the use of resistant varieties can be an alternate solution, but because of numerous diseases and insects that can affect a crop, it is difficult — and not yet achieved — to have a variety resistant to all pests. The following Table illustrates the damage that can be caused to corn by the major Quebec corn pests, namely: Fusarium, eyespot, and European cornborer.

These major pests are responsible for 15 to 45 per cent losses in yield quantitatively depending on the intensity of the infestation. Among the conditions favouring infestations of these pests, monoculture of corn is an essential one. In the cases of Fusarium and eyespot, it ensures a build up of inoculum of the causing agents. Another disease with a higher incidence than in previous years is corn smut. Again, crop rotation should see a lessening of this disease. For European cornborer, the predominant damaging insect of corn, the pupae overwinter at the base of the corn stalk. Thus reseeded corn over corn favours the propagation of cornborer.



Crop rotation should see a lessening of diseases such as corn smut.

**Table 2. Per cent plant attack by different pests in Nicolet, 1978
D. Chez and R. Martin, unpublished data.**

Variety	% affected by Fusarium	% affected by eyespot	% affected by eyespot + borer	% affected by corn- borer	Total % affected
A	12	16	4	12	44%
B	0	32	4	8	44%
C	20	5	16	0	41%

Though insecticide in this case can be effective on cornborer, the degree of effectiveness does not equal rotation, which depletes the food source of the insect.

Factor 4: Weeds

Infestations of weeds that were, only a few years ago, found only occasionally in the field, are observed more and more. Yellow nutsedge and horsetail infestations are two clearly identified situations in fields that have been seeded with corn for several years. Why? The use of selective herbicides eliminated the natural competitors of these weeds and left open areas that they could invade. The exact losses directly resulting from these infestations are difficult to estimate. At Macdonald

College attempts to evaluate the losses caused by different weeds have been made and the preliminary results confirm that weeds, particularly species such as the two mentioned above, do cause substantial losses in crops.

There are different associations of weeds and crops, and long-term experiments in Rothamstead have shown that crop rotation is an effective way of preventing predominance of one or a few species of weeds. Even though there are herbicides available that could clear the land, it is only postponing the issue. Atrazine resistant lamb's quarters that have been identified in some corn fields in Ontario illustrate the threat of depending solely on short-term solutions.

The data in Table 1 illustrate that crop rotation, even as simple as the two years — one of corn and oats — improves corn yield. Not only does it improve yield, it also ensures a better utilization of the soil as a basic resource of crop production. At the same time, it offers a certain stability of yield by offering some control over crop enemies — diseases, insects, and weeds.

Nevertheless, we understand the difficulties that crop rotation brings to the farmer: diversification of machinery, feed demands of the herd, etc. However, the benefit that crop rotation offers, we feel, overcomes these difficulties. In order that the farmer gets the best of crop rotation, however, research has to be done to find the best system suited for our type of agriculture.

Continuous Corn: An Economic Perspective

by A. Douglas Mutch
Department of Agricultural
Economics

In the last three decades there has been a pronounced shift in North American agriculture away from diversified production and toward specialization. Self-sufficiency of a farm unit no longer is of prime importance as many producers find it more profitable to direct their efforts toward a single product and to purchase their other needs from off the farm. For crop production this has resulted, in many cases, in crop rotation being replaced by monoculture.

As shown in the accompanying sections of this Journal, some natural benefits derived from a crop rotation system are lost when a producer decides to begin continuous cropping of a single grain. By specializing in only one crop, the producer must compensate for these losses by more intensive cultivation and increased applications of both fertilizers and herbicides. In short, the natural abilities of the soil and the ecosystem are unable to support a monoculture, and this necessitates more input from the producer in order to maintain high yields. In this period of volatile prices and high

costs, good farm management becomes of critical importance if a producer is to optimize output to the point of maximum profits.

Even though input costs have risen sharply in recent years, and continuous corn necessitates high inputs, it appears more profitable for a producer to specialize in corn. When the soil and climate is capable of producing this crop, many producers have shifted in recent years from other grains into corn. This trend is particularly true in North America as both Canada and the United States have realized increased corn output. As can be seen in the adjoining table, the higher production in Can-

ada is due to both a larger planted area and better yields.

The improvement in yield since 1968 is somewhat camouflaged due mainly to the sharp increase in corn plantings. The total area planted to corn in Canada has basically doubled during this period while output has more than doubled. However, as the area planted to corn has increased, more marginal land has been brought into production and thus the average quality of the land has dropped. Land of a fixed quality during this period has realized increased yields.

Corn produced in Quebec finds a ready market as Quebec (and eastern Canada as a whole) is a feed grain deficit area. In order to fulfill their requirements, livestock feeders must import grain from Ontario, the Prairies, and the United States. Thus Quebec corn prices are influenced by the interplay among these three other regions. Montreal effectively is the central pricing point for both Quebec and non-Quebec feed grains.

The central market for U.S. corn is in Chicago. Prairie feed grains are continually offered in Thunder Bay by the Canadian Wheat Board at prices competitive to U.S. corn landed in Montreal. Thus the Montreal

price for grain produced outside of eastern Canada is directly related to U.S. corn.

If there is a surplus of feed grains in the Prairies (as is currently the case), the cash grain market in Thunder Bay can fall below the Canadian Wheat Board offering prices. This situation has occurred since October 1977, especially for barley, and hence barley has been available in Montreal at prices below levels competitive to U.S. corn.

Corn produced in Ontario and Quebec must compete with both U.S. corn and Prairie feed grains. Currently Prairie barley is trading at a substantial discount to U.S. corn and hence barley is capturing a greater share of the eastern Canadian feed grain market. As long as this price spread continues, barley usage will remain high.

Eastern Canadian corn prices are staying near and sometimes above U.S. corn prices. This has resulted in eastern corn losing market shares mainly to western barley but also to U.S. corn. If eastern corn prices remain at uncompetitive levels, a further loss of market share could occur.

Feed grain demand in Quebec remains strong, especially due to major increases in livestock production. Hog output has risen greatly in re-

cent years and producers are currently planning to continue this expansion in 1979. As the United States has recently begun an aggressive expansion of hog output, however, a word of caution is necessary. Higher U.S. hog output will drop North American hog prices and could cause Quebec hog producers to lower their output intentions.

Generally, however, Quebec corn producers have one major advantage. Their corn is grown here and hence does not need to be transported long distances. Grain from out of province must reflect the cost of moving it from either Ontario, the Prairies, or the United States. If the Quebec producer can attain comparable yields at a comparable cost, Quebec corn will be very competitive. The lower transportation costs can be considered a safety margin which compensates for any higher production cost.

It must always be remembered, however, that the Quebec corn market does not operate independently. The price of corn in Quebec depends almost exclusively on the supply and price conditions in the Ontario, Prairie, and U.S. markets.

TABLE 1. CANADIAN CORN PRODUCTION, AREA AND YIELD.

	Quebec			Ontario			Canada		
	Production	Area	Yield	Production	Area	Yield	Production	Area	Yield
1968	68.3	12.9	5,295	2,005	376.4	5,328	2,076	390.2	5,321
1969	96.7	19.9	4,859	1,783	378.4	4,714	1,882	399.5	4,713
1970	201.2	42.6	4,723	2,429	455.3	5,335	2,633	499.3	5,275
1971	336.2	55.8	6,025	2,598	511.1	5,084	2,946	570.6	5,163
1972	194.0	46.1	4,208	2,316	485.6	4,771	2,528	537.0	4,708
1973	214.3	48.2	4,446	2,566	475.5	5,398	2,803	530.2	5,287
1974	292.6	66.8	4,380	2,291	522.0	4,389	2,588	590.8	4,382
1975	307.6	55.4	5,552	3,318	579.7	5,774	3,644	635.0	5,740
1976	312.6	63.0	4,962	3,429	639.0	5,367	3,771	708.9	5,320
1977	290.0	63.0	4,603	3,916	652.0	6,008	4,246	724.7	5,859
1978	383.5	67.0	5,724	3,327	680.0	4,894	4,250	783.0	4,925

Production: Thousand Tonnes; Area: Thousand Hectares; Yield: Kilograms per Hectare.

The Family Farm



Published in the interests of the farmers of the province by the Quebec Department of Agriculture.



First three members appointed to the Commission de Protection du Territoire Agricole du Québec

The Cabinet has appointed the first three members of the Commission de protection de territoire agricole du Québec, which was created December 22 through the adoption of and assent to an Act to preserve agricultural land.

The three members are Pierre-Luc Blain, lawyer, who will be president of the commission, Albert Alain, farmer, vice-president, and Lauréan Tardif, agronomist.

Each of these three members, who will be entrusted with launching one of the most important reforms of Quebec agriculture, has in his own professional field already been very closely involved with the development of this sector.

As counsel to the Union des producteurs agricoles since 1961, Mr. Blain has participated in the preparation of various joint marketing plans and in federal-provincial agro-food negotiations. He is also a specialist in administrative law, labour relations, and expropriation. He brings to the Commission a vast knowledge of real estate law and agricultural legislation.

Mr. Alain is well-known in the agricultural sector, having been president of the Union des producteurs agricoles until 1972. For 30 years he has been involved in Quebec agricultural unions and, thanks to this, has worked his way up in the U.P.A. from the presidency of the Abitibi region to the national vice-presidency and national presidency. In the last-named

capacity, he directed agricultural unionism in some of the major battles, especially in the one to obtain legal recognition of the status of farm producer.

As a pedologist, Lauréan Tardif made a major contribution to the first inventory of Quebec soils in terms of their quality. He is also the author of a system of classifying soils according to their agricultural capabilities. With the ministère de l'Agriculture since 1959, Mr. Tardif was head of the Section d'aménagement et d'utilisation des sols and then in charge of the Division de pédologie. He has the scientific knowledge which is essential for the Commission to carry out its principal aim — the protection of agricultural land in relation to its potential.

The Cabinet has also appointed Roger Langlois, lawyer and MBA as secretary-general to the Commission. Mr. Langlois will be responsible for the sound administration of the Commission. He has solid experience in the real estate field having been with the Central Mortgage and Housing Corporation since 1967 in various capacities including the post of director of the Corporate Planning Division and responsibility for the Support Centre for Quebec.

WITHOUT PESTICIDES — SILENT FALL

"There is no point in going into the details of the controversy over agricultural pesticides, but it is important to draw attention to the recent publication of certain brochures and a series of slides on the subject," says Dr. Bertrand Forest, general director of Recherche et Enseignement at the ministère de l'Agriculture du Québec.

In view of the criticism to which they are subjected, pesticide manufacturers have decided to give clear answers to the questions posed by a public whose only source of technical and scientific information is too often newspaper reports or sensational books.

The first brochure published by Dow Chemical of Canada is entitled "A Closer Look at the Pesticide Question" and is accompanied by a series of slides with a French text. The second publication by the same company, of which a French version has also just been published, is entitled "Silent Fall" and gives the facts about pesticides and agricultural chemical products.

You will note the similarity between the title of the latter publication and that of Rachel Carson's book ("Silent Spring," 1962) which, at the time, aroused qualms concerning the use of chemical products in agriculture. Times have greatly changed since the publication of Rachel Carson's book as many countries, instead of having a food surplus, now suffer from a food shortage.

"Silent Fall" shows the disaster one faces by giving up pesticides and other agricultural chemical products in an overpopulated world. This publication tells the story of the numerous famines which have plagued mankind since biblical times and still do in spite of modern technology. Upon reading this work, one realizes that the forces of nature are often much more harmful than man's.

It must also be mentioned that the February 1978 issue of the Dow Canadian periodical, "Insight Edition," is entirely devoted to a discussion of the attacks on chemical products. It contains scientific information which should always be asked of those who oppose their use for agricultural purposes.

These publications can reassure the public by showing that industrialists, scientists, and politicians are aware of the balance necessary between food production and the risks of environmental pollution, between the mouths to feed and the quality of the milieu of life.

Far from destroying our natural heritage, agriculture has fashioned the landscape. Thanks to modern scientific methods, it provides us with a quantity of wholesome, high-quality, and inexpensive foods. There is no special property in foods grown without pesticides or chemical fertilizer. They are not more natural and do not possess any supernatural property.

PROVINCIAL STUDY DAYS ON FARM SUCCESSION AT THE FORET MONTMORENCY

The Provincial Study Days were held on December 5, 6 and 7 at the Pavillon de la Forêt Montmorency. Young farmers in the process of establishing themselves or recently established came from throughout the province.

Under the theme "I am involved in my farm succession group," the participants decided to set up a practical working method in order to solve the various problems focused upon.

Very Active Participation

In a really friendly atmosphere, the young farmers exchanged ideas and experiences in each study group. According to the organizers, all the participants showed marked interest during the sessions. In all, 81 young farmers cooperated and so helped make this year's Provincial Study Days a success.

Study Groups

Several of the young farmers we met at the Forêt Montmorency clearly expressed their satisfaction after the discussion in the study groups. For the occasion, nine mixed study groups were formed, made up of Farm Succession members from various regions of the pro-

vince. It goes without saying that the exchanges were fruitful at every level.

Awarding of Medals

At the very end of the Provincial Study Days, the annual awards of gold, silver, and bronze medals were made. These medals are given each year to the young farmers who have submitted the best work in the competition "my establishment file." Alphée Pelletier and Lison Laroche of La Pocatière, winners of the competition, received the gold medal for the excellent work. Hubert Mélançon, director of the Bureaux et laboratoires régionaux of the ministère de l'Agriculture du Québec, had the pleasure of awarding the prizes to the happy winners. André Fortin (Saguenay region) and Daniel Seguin (Montreal region) respectively won the silver medal and the bronze medal.

Alphée Pelletier, one of the winners of the gold medal, was invited to say a few words. Visibly moved and indulging in the occasional joke, Alphée nevertheless took it upon himself to give his impression of the "my establishment file" competition. He stressed the view that this competition should remain a priority of the program of the Service de la Relève agricole of the ministère de l'Agriculture du Québec. According to him, this competition is a first-rate stimulus for all future farmers.

THE RAFFINERIE DE SUCRE DE QUÉBEC BUYS THE EQUIPMENT OF A MAINE REFINERY AT AN AUCTION

The Minister of Agriculture, Jean Garon, and the chairman of the Board of Directors of the Raffinerie de sucre de Québec, André Marier, have announced an important transaction by this government enterprise, namely the purchase of most of the equipment of Triple-A Sugar, a refinery located in Easton, Maine.

This transaction was approved by the Cabinet on October 11, 1978, on the recommendation of the Minister of Agriculture and carried out at an auction held at the order of the Court on October 19. The purchase price of Triple-A Sugar's extracting and refining equipment and of the three buildings housing it was \$1,700,000 in U.S. currency.

The Raffinerie de sucre de Québec thus became the owner of equipment in excellent condition installed in 1966, but so far used for only four beet crops. This equipment was made by a German firm with an international reputation for sugar beet equipment. Last summer, its depreciated value was estimated at \$10.1 million whereas the cost of such equipment bought new today would be more than \$30 million. The financial difficulties which resulted in the closing down of Triple-A Sugar therefore had nothing to do with the quality or condition of the refining equipment, but are rather the result of supply problems in an area where sugar beet growing was not established.

A Unique Opportunity

The purchase of the Triple-A Sugar equipment represents a unique op-

portunity for the Raffinerie de sucre de Québec at a time when it has to consider the possibility of modernizing its existing equipment.

The nominal processing capacity of the purchased equipment is 4,000 short tons a day whereas the Quebec refinery, with some parts of its equipment dating back to the last century, can process only 1,600 short tons a day. Moreover, minor additions to Triple-A Sugar's equipment, especially as regards evaporator and the control system, could raise the technological level to that of the most modern refineries.

A New Operational Margin

According to Mr. Garon, what this transaction brings to the Raffinerie de sucre de Québec is, above all, a freedom of action which it has always lacked in the face of decisions to be made concerning its modernization and expansion. Renewal of the refinery's equipment to the extent now made possible through the purchase of the Triple-A Sugar equipment would, for all practical purposes, have been unthinkable before because of the prohibitive cost of such a project. On the other hand, more limited modernization to meet the most pressing needs, but without increasing the capacity, would have cost approximately as much as the purchase of the American enterprise.

For the same cost, the Raffinerie de sucre de Québec will have two basic options instead of only one, that is modernization with capacity maintained at its present level or

modernization with increased production and prolongation of refining operations up to the white sugar and bagging levels rather than stopping at the raw sugar level as is at present the case.

The installation in Saint-Hilaire of the Triple-A Sugar equipment and the different modernization possibilities of the enterprise will have to be the subject of engineering studies. However, before a final decision is reached, one of the main factors to be taken into consideration will be the willingness of farmers to produce sugar beets sufficient in quantity and quality. The acreage grown should in fact be increased from its present level of 6,000 to 10,000 to justify the modernization of the plant with maintenance of the present capacity or to 22,000 for maximum use of Triple-A Sugar's equipment.

Quebec has a 35-year tradition in sugar beet production and the experience of Triple-A Sugar shows that it is precisely this experience, coupled with the farmers' willingness to produce raw materials sufficient in quantity and quality, which can be the determining factor in the success or failure of a refinery project.

According to Mr. Garon, the Cabinet's decision to authorize the purchase of Triple-A Sugar illustrates the intention of the Quebec government to maintain this production and put it on a more solid basis. It is now important for the growers to support this willingness to develop and to undertake to supply the Raffinerie de sucre de Québec in keeping with the refining capacities to be installed.

QWI

Awards Banquet

The Macdonald Scholarship Awards Banquet was held on Thursday, November 9, 1978, in the Centennial Centre under the Chairmanship of Professor R. S. Broughton. Dean L. E. Lloyd welcomed the guests.

A reception was held prior to the banquet, giving an opportunity for recipients and donors, as well as the members of the Staff of the School of Food Science and the Faculty of Agriculture to mingle and to get acquainted with one another.

The tasty Smorgasbord dinner was prepared and served by the Third Year Students of the School of Food Science. The tables were decorated with centrepieces representing Graduating Certificates. I had the privilege to represent the Quebec Women's Institutes and to present our Awards.

The Frederica Campbell MacFarlane Prize, awarded to a student from a rural area of the province obtaining the highest final mark in any of the three years of the B.Sc. Course, was presented to Miss Stephanie Smith of Granby.

Miss Susan Salter of Lennoxville received the Mrs. Alfred Watt Memorial prize, which is given to a student from rural Quebec who shows qualities of leadership.

Both of these young ladies are looking forward to being able to find employment in their chosen occupations upon graduation.

The Quebec Women's Institute Bursary, which is given to the son or daughter of a farmer living in Quebec and who has spent at least one year on the farm and is registered in the second year of the Diploma in Agriculture Program, was won by Mr. Peter Boersen of

Melbourne. Unfortunately Peter was not present as he was judging at the Royal Winter Fair.

This year, I had an added honour. I had the pleasure of presenting the Stanstead County Women's Institute Bursary, which was won by Miss Hazel Phillips.

Stanstead County Women's Institutes are the administrators of the Scholarship Fund from the estate of the late Maud Lillian Kepar — a devoted WI member, an equally dedicated teacher and a graduate of Macdonald College. This Scholarships is one for majoring in Home Economics and is intended for a recipient from Stanstead County. As there was no one from Stanstead, it was decided to help a girl in her graduating year at Macdonald College. However, it is hoped that there will be an application next year.

I was very much impressed by these students, and I wish them every success in the future as they pursue their chosen vocations.

Mrs. Walter Kilgour,
President, Quebec Women's Institutes

School Fair

The **Sherbrooke County** School Fair was held on September 9 at the Lennoxville Elementary School with a total of 377 exhibits on display from the two schools, the other being Sherbrooke Elementary. This was 106 entries more than last year. There were 10 judges for the various exhibits. The overall winner was a boy from Lennoxville Elementary School, Scott Kirby; 2nd was Lorraine Andrews, and 3rd was a tie between Jennifer Naylor and Christopher Carbonneau, while 4th was Jonathen Page.

The gardens were judged by Mrs. Merrill and the Convener and the winner was Christopher Carbonneau. Next was his brother, Raymond, third was between Neil McCombe and Michel Naylor. There were 29 gardens judged altogether.

Mrs. Linda Ross, the Convener, arranged her schedule of work as follows: Two visits to schools to talk to the children; collection of seed forms; distribution of seeds; made reminders to schools of fair coming up; distributed applications and later collected same; arranged for garden judging, and spent two days with the judge visiting gardens.

On the day of the Fair while the judging was taking place, Mrs. Naylor organized games and sports for the children. After lunch the judges were asked to give pointers to the children.

All branches helped in various ways to make this another successful School Fair.

Highlights of the Year

Looking back over 1978, one of the highlights of the year for **Compton County** had to be the occasion when 83 members and former members gathered at the Trinity United Church Hall in Cookshire to commemorate the 65th anniversary of the Compton County Women's Institutes. This site was chosen as it was here that the first Women's Institute meeting in the County was held on December 20, 1912. It was then called the Methodist Church with the Reverend A. H. Robertson as minister. He was instrumental in bringing the WI to the county, the third Women's Institute in the province.

Guests were greeted by Mrs. Helen Groom, President, and a reception line was formed with Provincial

President, Mrs. Ina Kilgour, Past President, Marion Ord, First Vice-President, Mabel Mackay, and Mistress of Ceremonies, Mrs. R. Stevenson. The usual banquet niceties were observed and a special table held the three-tiered Anniversary cake. A delicious meal was enjoyed, furnished and served by the ladies of the Cookshire U.C.W.

A brief resumé of how Compton County WI was started was read by Lavina French, which was most appropriate as her mother-in-law, Mrs. A. E. French, of Flanders was one of the first members and directors.

Mrs. Kilgour addressed the group and was then thanked by Mrs. Heatherington, a former Cookshire member, now of the East Angus branch. A singsong and readings rounded out a most successful anniversary celebration.

Abbotsford at a Glance

Last summer a picnic was held in Richmond for members and husbands. At this time we took the opportunity of visiting the Wales Home where one of our members, Mrs. Helen Gillespie, recently became a resident. We have had a luncheon and card party in the Parish Hall to which the members and the young women in the area and their children were invited. Everyone had an enjoyable time. Members have brought in jelly for the Diet Dispensary and articles and knitting for CanSave.

Trip to Vermont

At our June meeting, we **Milby** WI members were happy to have with us at our Club Room several ladies from a social club in Orleans, Vermont. We had been in touch with them and had invited them to share in our meeting.

We were invited to make a return visit on October 6 and to take part with them in a tour of the Ethan

Allen furniture factory, which was celebrating its 50th anniversary with open house to the public. Even a steady downpour did not dampen our spirits. We received a warm welcome wherever we went, and we found the tour extremely educational. As we passed from one department to another on the guided tour, we were amazed to learn how many hands and machines are employed in the production of one chair.

Following the tour — which my feet told me was about three miles long — we were treated to coffee, cake and ice cream. The cakes, which were beautiful, were made by the employees for a competition with a prize of \$25 for the best decorated cake. They all looked like first-prize cakes to me!

After the tour we returned to the home of the President, Mrs. Hilliker, where we were served delicious refreshments by the ladies. We enjoyed a friendly chitchat with our good friends below the border whose hospitality warms "the cockles of the heart."

We sincerely hope we may have a return visit from them 'ere too long.

Glimpses from Stanstead

Looking back, a busy few months; looking ahead, equally busy. All branches participated in the Ayer's Cliff Fair by operating the tea room, which was well patronized. They also participated in the craft exhibits and all placed in the contest. The School Fair followed in September and again the WI were in full swing for two days.

Stanstead North held Open House and served refreshments to observe 50 years of custodianship of the Mansur school house. **Hatley Centre** had as guest speaker, Mrs. Gagné, the medical supervisor at the Maison Blanche. She spoke about the Home, which has 62 elderly and disabled people. They

also had Mr. Walls, Principal of North Hatley School, who spoke on Bill 101. **Beebe** members sent a letter of protest to the Minister of Transport protesting the spraying of trees and shrubs along the roadside. **Ayer's Cliff** heard Mrs. Eva Baldwin Morton. Mr. and Mrs. Morton are involved in the Second Mile Inter-denominational ministry at Lennoxville and do counselling work for people of all ages.

Varied Activities

Aubrey-Riverfield's last few months have been fruitful. They've celebrated Grandmother's Day, held a dessert luncheon, planted flowers (which they do every year) at the Cenotaph, donated to worthy causes, i.e., cancer research, the Landrover, mentally retarded, and Pennies for Friendship. An interesting way to collect for the latter was having the members pay one cent per inch for the length of their leg. They have had a food and plant sale, visited senior citizens homes, joined with Howick in seeing Mrs. Robertson's slides on Kenya and joined in on trips to parts of Ontario and to Montebello.

Asbestos Mining

In August, several members of **Kinnear's Mills** WI and their families toured the British Canadian Mine of the Asbestos Corporation Ltd. in Thetford Mines.

Asbestos is the name applied to a number of fibrous mineral silicates found in nature. The most common type of fibre and the one occurring at this mine is known as Chrysotile, which comes from the Greek word meaning "fine hair of gold." The industrial values of Chrysotile asbestos are derived from the following physical properties: fibrous structure, non-flammability, colour, heat resistance, and low conductivity. There are more than 3,000 uses for the seven general groups of fibre: Groups one, two, and three

are long fibres for spinning use — electrical insulating materials, etc. Groups four and five are medium length fibres for construction and other industries — asbestos cement, water pipes, sheets, etc. Group six are short length fibres — brake linings, etc. Group seven are very short fibres for use as a filler — paints, etc.

The British Canadian mine is located in the town of Black Lake, several miles from Thetford. Mining operations have been in progress since 1885 under various mining companies. The first asbestos mill on the property was built in 1888. There are now two open pits, the main one is over a mile long and one half mile wide. The mine operates on a 24-hour basis, six days a week, mining approximately 58,000 tons per day.

On arrival at the main gate, we boarded a bus which took us part way down into the large mine. (Water in several small ponds was a green colour.) We were shown how the rock was broken up by huge drills and then loaded on the trucks. Major pit mining equipment was on display which included electric shovels, front-end loaders, haulage trucks, bulldozers, and graders. The normal mining bench height is 50 feet. Hole spacings vary from 12 by 14 feet to 21 by 23 feet depending upon the size of the drill holes and type of explosive. The principal one is slurry, which is delivered to the blasting site in a specially equipped tank truck unit that ejects the proper mixture into the hole. Secondary breaking is done by a self-contained drilling unit and mudcapping. A rock breaker is also used. Loading of broken rock is done by electric shovels or front-end loaders into haulage trucks. All equipment has intercom and two-way radios controlled by a central dispatcher located in a cabin on the side of the pit.

Another bus took us out of the pit to a building where the men change



Mrs. James Davis, right, of Quyon WI, being presented with an Abbie Pritchard Throw by Provincial President Mrs. Walter Kilgour. Mrs. Davis has been a WI member for over 50 years.

clothes and have lunch facilities. We were treated to coffee or soft drinks and doughnuts. There was a display of clothes and equipment worn by the miners at work.

Then on to another bus which took us to the sixth floor of the mill. As we descended from floor to floor, the various stages of crushing, drying, and storing were shown and described. The ore is fed in a jaw crusher set at 5-1/2 inches and next to a cone crusher and further reduced in size. Accepted material is dried in oil-fired rotary driers and then put into a 24,000 ton dry storage bin. From this bin, the ore is fed to four identical rock circuits, consisting of screens, crushers, and fibrizers. The fibre is given a primary cleaning on gyrating screens, separated by length, and after further cleaning, it is graded. The finished grades are stored in fibre bins from where they are fed to machines which automatically weigh 100 pounds of material, then compress it into a cake. The cake is then ejected from a spout into a paper or polyethylene bag, passed over a check weigher, sewn, and stamped with an identifying number. The bags are then taken to the storage warehouse for shipment by van, rail, or container. We also visited the machine and welding shop which does repairs and fabrication work, and the furnace room consisting of two huge oil-fired furnaces. There is also a stores section which looks after an inventory of about 12,000 items.

The children were given special treats, and all returned home, having spent a very interesting afternoon.

Dear WI Members:

This is February and the earth is still sleeping under a soft white blanket, but the days are a little longer. A snow storm could race in at any time, but when one is outdoors on a sunny day there is a faint promise of spring in the air. We celebrate Valentine's Day this month, too — a lovely idea! One morning I heard the song, "Give a little love at Christmas," and the thought came to me that our WI ladies really tried to do this, for the December reports relate happy events in keeping with the holiday season. Meetings were held in gaily decorated rooms, buffet lunches served, carols sung, and Christmas stories told. Senior citizens and shut-ins were not forgotten, and special attention was paid to children in the community and, in some cases, gifts were exchanged among members.

Kathleen White from **Abbotsford** writes, "At the close of the December meeting, tea and coffee and cookies were served, to which the young mothers of the community and their children were invited." This was followed by the singing of carols in which all took part, including two of the husbands of members. From Megantic County, **Inverness** reports that each member is to make a bookmark for the FWIC Convention in Saskatoon in June. At **Kinnear's Mills** a letter was read from the Sherbrooke Record about a small, poor girl in hospital at Christmas. Also, the annual meal out in a restaurant at Thetford Mines was enjoyed by all. Mrs. Woods from the Historical Foundation was guest speaker at **Aylmer**. Her topic was quilts and she had a book showing pictures of quilts made by people in the Gatineau area. The members found it all very interesting. **Wright**

members enjoyed a riddle contest at their December meeting with Mrs. George Howard as winner. A game of forfeits and stunts was also enjoyed with everyone present taking part.

From Missisquoi County we learn that a sale of homemade articles took place at **Cowansville** with the proceeds going to the District of Bedford Association for the Mentally Retarded. A new member was welcomed at **Stanbridge East**. Several members brought in homemade decorations and told how they made them. "A little thought and patient hands go a long way to brighten our home at this time of the year." The **Fordyce** members had a letter sent to the Sherbrooke Hospital stating their displeasure at the possible closure of medical facilities there. Some of the ladies had been patients in this hospital during the past year.

Mrs. D. Tracy, Sherbrooke County Publicity Convener, reported that Mrs. Margaret Smart was presented with a 25-year bar by **Belvidere** President Miss M. Kinkead. Home Economics Convener Miss Eva Beaton told members that Mrs. H. Wallace will be having a competition for making crocheted or patchwork potholders for the February County meeting in place of a speaker. The cost of wiring the club house was discussed at **Milby**. They hoped to get it done before the new year. At the **Lennoxville** meeting, the Education Convener noted that many better books are now being put out in paperback, and Mrs. G. Hatch, Citizenship Convener, at **Brompton Road** reported that a substantial amount had been made for UNICEF at the recent card party.

An item was read at **Dalesville-Louisa** which had to do with raising children to show good will toward those of another race or group. It said, "Striving to be a sterling example to one's children may well be the most ambitious and significant challenge of a parent's life, but it is the best and possibly the only insurance against rearing a child who is prejudiced against his neighbours." **Jerusalem-Bethany** members brought in gifts for children at the Rosemere Home and cookies were packed to be taken to

Manoir St. Philippe. Members of **Frontier** branch planned to go carolling at the Smith Clinic and elsewhere if the time permitted. A couple of current events from Mrs. Hyde at **Pioneer**: Margaret Trudeau's book will be published in the spring and she spoke of the Christmas card that the Prime Minister was sending. The Agriculture Convener at **Brownsburg** discussed Bill 190 re agricultural land. She also reported that the Federal Department of Agriculture had been in touch with former owners of Mirabel properties regarding possible making of maple syrup. Mrs. Catherine Lowe, **Grenville**, reminded members that this is the Year of the Child and asked that every branch in Argenteuil County remember this in their plans for the year. Mrs. Lillian Crooks read an interesting article about the Christmas seals. The first year it started for TB patients it made about \$300, and now the sale is well over one million.

Instead of a Christmas party at **Clarendon**, each member was to visit a sick person or shut-in and take a treat or gift. Mrs. L. Cameron, Citizenship Convener, introduced the guest speaker, Mrs. Andai, a prominent photographer, who gave a very interesting talk on her life in Hungary before and after the War. She told of her family's escape, their treacherous voyage and arrival in Montreal, and the hardships they encountered before they became established in Pontiac County.

Christmas programs were well carried out by the three branches in Shefford County. The roll call at **Waterloo-Warden** was to bring in the earliest picture you have of yourself. The agriculture convener of **Granby West** urged us to eat better foods and Home Economics reported on the rising cost of bread. **Granby Hill's** Education Convener read an article on the rights of the child. The Citizenship Convener reported that there would be a display of crafts made by people over 50 and taught by one of our members, Mrs. Helen Shanks.

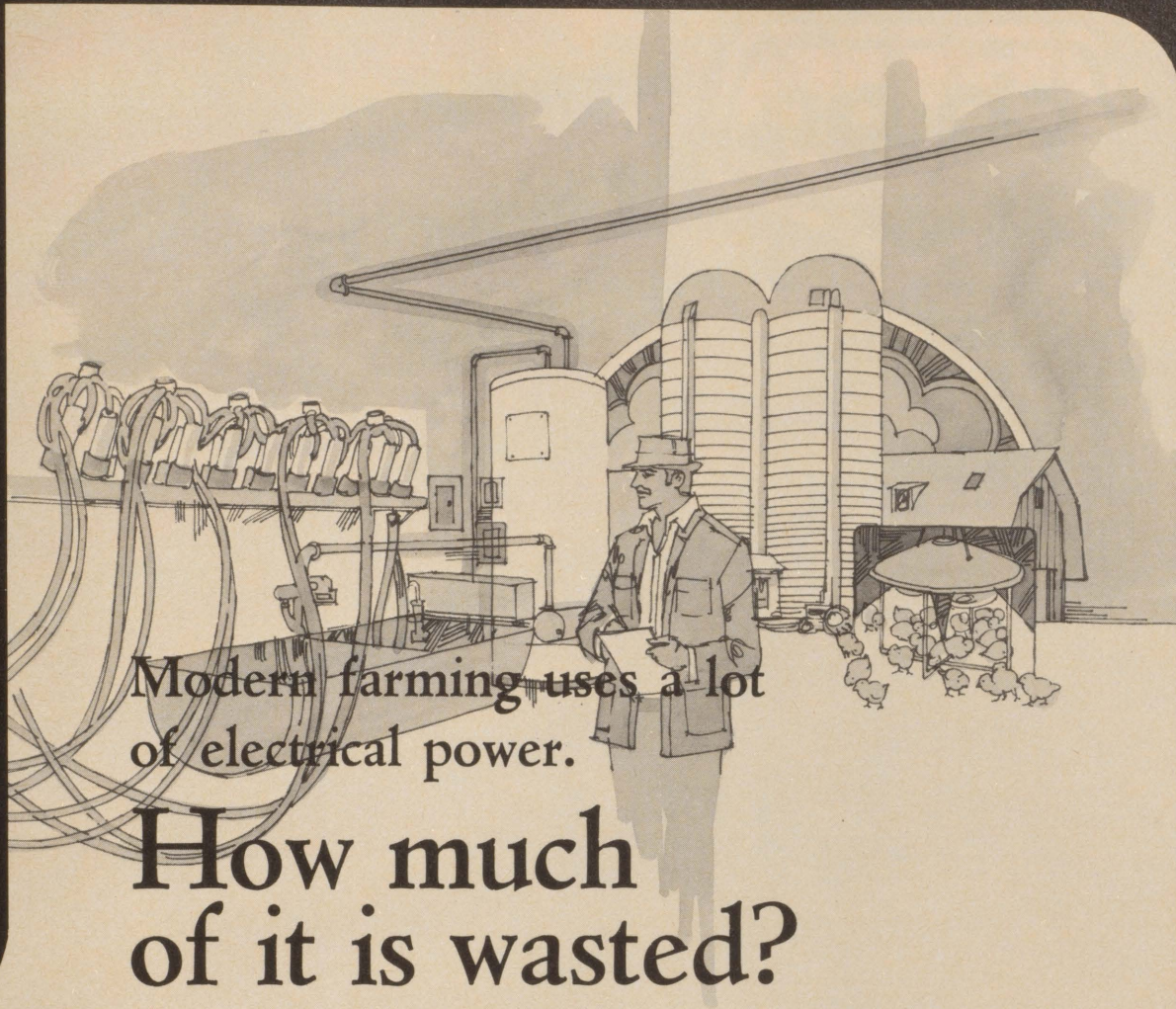
Some members at **Aubrey-Riverfield** prepared two quilts. They will go to Mrs. Ruth Graham, R.N., at the Chateaugay Valley Regional

School to be given to needy people. At **Hemmingford** a committee was formed to work on the Year of the Child, and school bus safety was a topic suggested. One new member joined this branch. The speaker was Mrs. M. Carin, who spoke on Hanukkah, the Feast of Light. **Huntingdon** members each donated \$1 to help with the Landrover project as well as assisting the Ormstown Nursing Home. The special guest speaker at Howick was Mrs. Bluebell Stewart Phillips of Dorval. She spoke of Christmas spent in many different circumstances, ranging from the funny to the thought-provoking story at the end that let members see Christmas through a little child's eyes. The program at **Ormstown** was very special. Held at the Walshaven Residence, with the senior citizens present, the junior grades of Notre Dame du Rosaire and Jean XXIII Schools presented a lengthy program of plays, songs, dialogue solos, and choruses in French and English. The pupils then presented each lady with a Christmas card made by themselves. Then the French-speaking pupils and the English-speaking WI members and Walshaven residents joined in a merry dance. This ended a happy afternoon for Ormstown WI.

Following are some donations: **Fordyce**, \$20 to District of Bedford Resource Centre for children with learning disabilities, \$25 to Milk Fund at Heroes Elementary School, and \$10 to Tiny Tim Fund at Montreal Children's Hospital. **Stanbridge East**, \$50 to Wolf Cub Pack to be used for tents. **Kinnear's Mills** to Butters Home and to Kinnear's Mills Home and **Milby** to cancer patient Christmas gifts and to homes for the elderly, also 60 candy bags for the children for the Community Club Christmas tree.

One branch sent in this thought: Christmas is the time of year to let your heart do the thinking; and I came across the following: Christmas is a warm front that rises north of November and drifts into the New Year." Let's hope it drifts right into February, the second month of the New Year.

Gladys C. Nugent
QWI Publicity Convener



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